FluxReader
Status and Update

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Outline

- Framework Overview
- Usage
- Documentation
- Tutorial Session

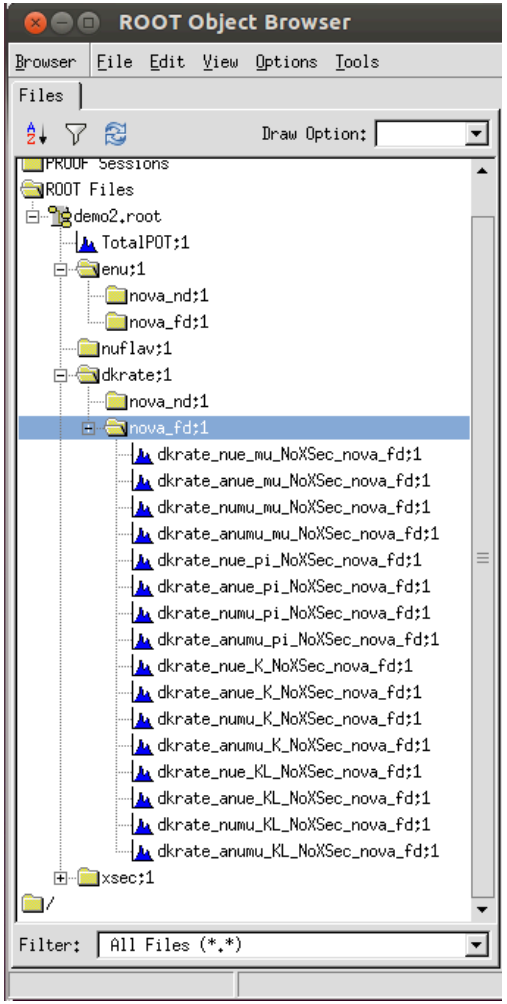
Framework Overview

- FluxReader is a framework designed to read flux (dk2nu) files
- It is READY FOR USE by anyone
- It is run by writing and running compiled ROOT macros
- The purpose of the framework is to generate a lot of similar plots quickly
  - Energy histograms for each neutrino flavor
  - p_T vs p_z plots for neutrinos from each parent species
- It can apply cross sections and external weights automatically
- POT information is saved as well, so the user does not need to remember to write this down

Input/Output

- FluxReader takes Dk2Nu files as input, and outputs a ROOT file to a user specified location

- The file is organized based on the type of Spectra produced, then further subdivided by plots at a specific detector

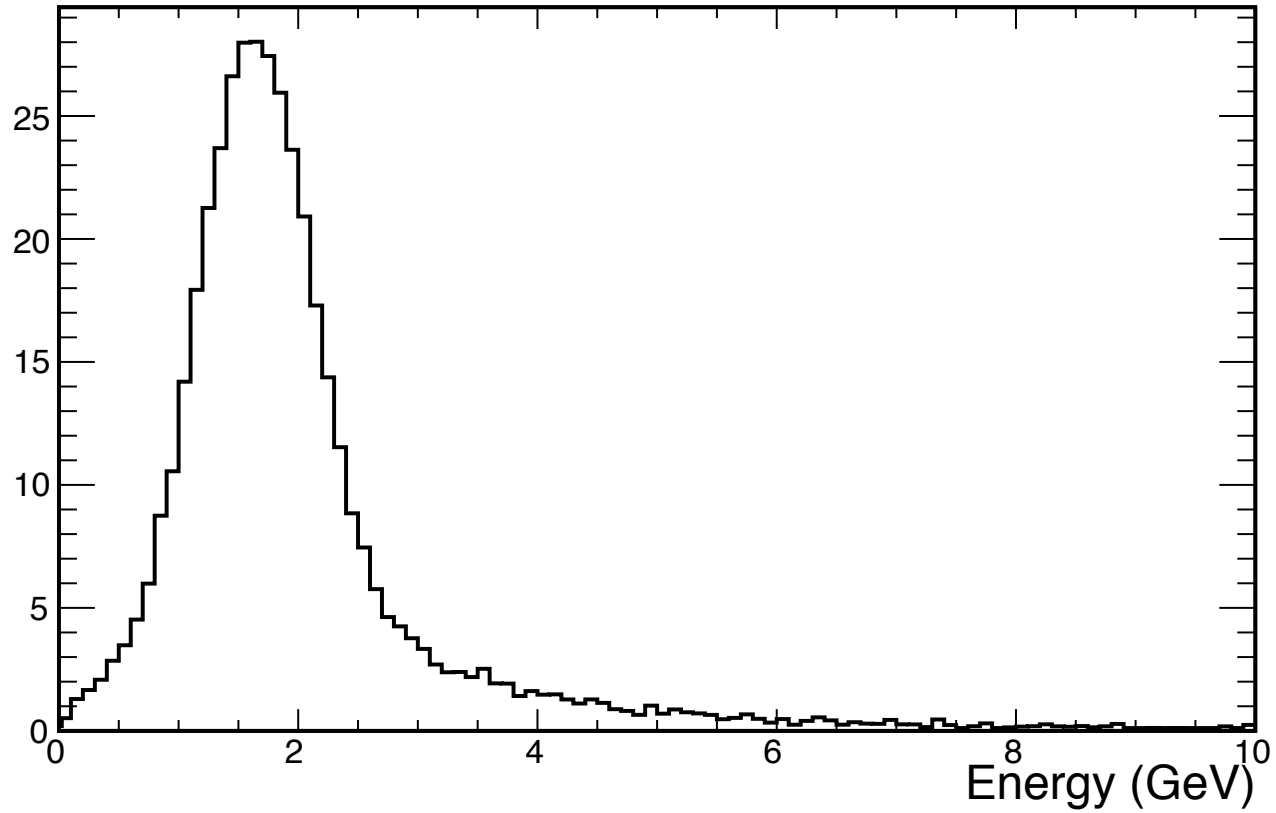


The User Can Configure:

- Neutrino flavors, parent species, applied cross sections, detectors
- Histogram type, binning, dimension
- Variable to fill, weights/cuts to apply, external weight logic
- Number of times to smear a neutrino ray through each detector

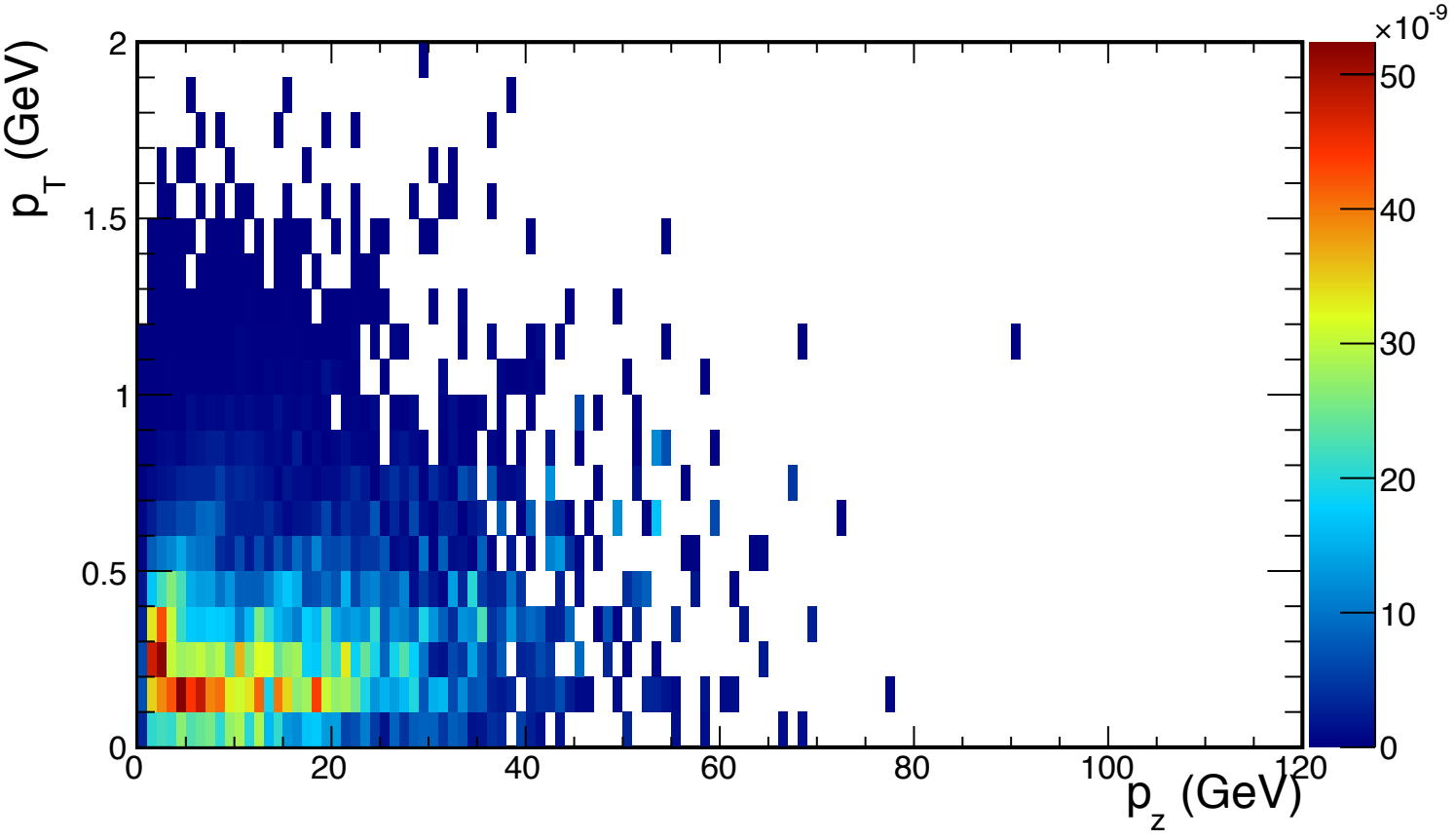
Usage Examples

- Neutrino Energy Spectra
- At NOνA ND, ν_μ, from pions, no applied cross section



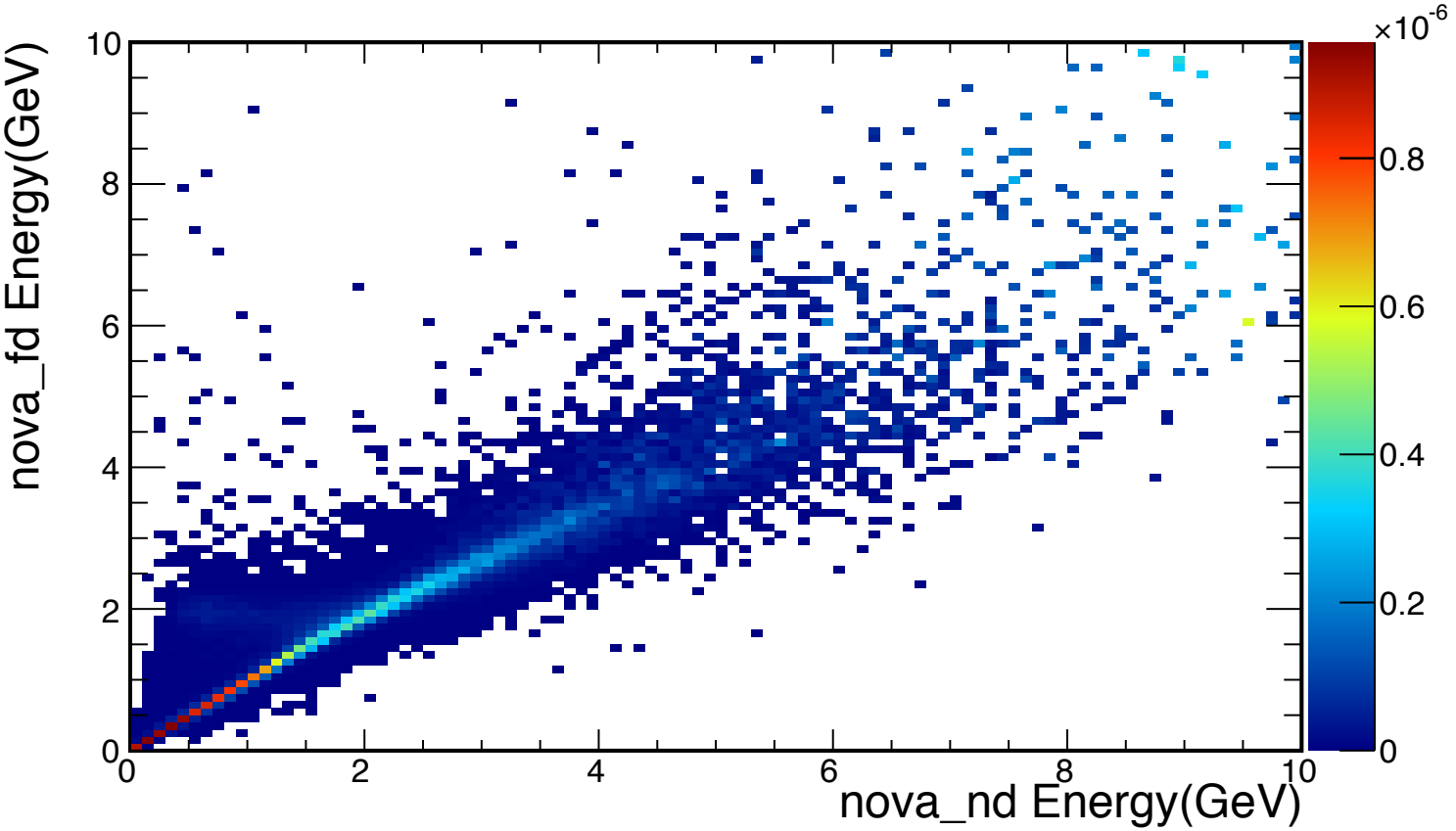
Usage Examples

- Parent p_T vs p_z
- At NOνA FD, anti-ν_μ, from kaons, no applied cross section



Usage Examples

- Beam matrix
- All ν's, from pions, no applied cross section



Access

- FluxReader exists in its own repository, independent of any single experiment
- The FluxReader Wiki has details on checking out and building the framework
  - https://cdcvs.fnal.gov/redmine/projects/fluxreader/wiki
- The details on the Wiki have been tested
- Users can check out the code and make local edits, but these changes cannot be committed
- Please email for Gareth (gkafka@fnal.gov) for requests

Documentation

- Internal code is thoroughly commented
- Six demo scripts exist, the first showing the bare essentials to run FluxReader, and subsequent scripts build in complexity
  - The scripts are labeled as Demo#_<Tutorial>.C, where # gives the order, and <Tutorial> describes what the script will demonstrate
- FluxReader Wiki!!!
  - https://cdcvs.fnal.gov/redmine/projects/fluxreader/wiki
- Tech Note to follow

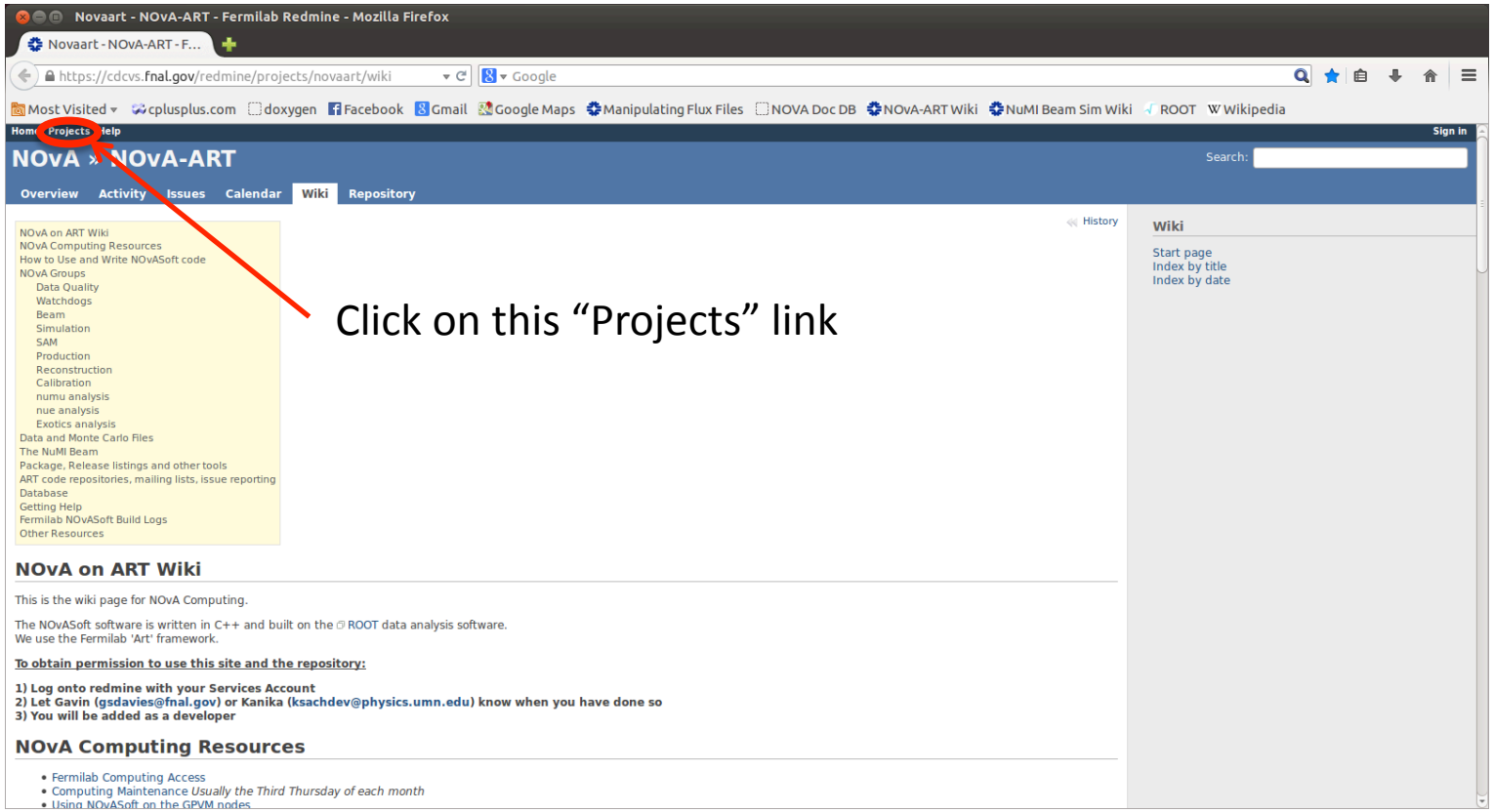
Tutorial Session

- Some time next week, there will be a tutorial session
- This will go through each of the demo scripts
- Details (date, time, connection) to follow

Back Up Slides

Navigating TO the Wiki

- This is information I found useful and wanted to share
- Starting from any one Wiki page, like NOvA's…



Navigating TO the Wiki

- Scroll down through the list of projects to find what you want, like NuMI-X, FluxReader, NuUtils, etc.